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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,186	04/10/2001	Tianfu Jiang	TJK/166	4183

7590 02/20/2003  
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EXAMINER

YILDIRIM, BEKIR L

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 02/20/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/807,186

**Applicant(s)**

JIANG, TIANFU

**Examiner**

Bekir L. YILDIRIM

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6. 6) ☐ Other:

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: The words "resultant" and "metathetic" should be replaced by the correct standard English terms "product" and "metallic", respectively. Further, the Applicant's cooperation is requested in correcting any similar errors of which applicant may become aware in the specification, which appears to be a translation from a foreign language.

The misused word "hydrochloride" should be corrected as hydrochloric acid.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-25 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

✓ In claims 1, 13 and 20, in the description of the continuous thermal cracking section, hydrocarbons are said to be "fully" cracked but also "new residues" are generated. "fully" seems to imply "to extinction" thus precluding the generation of "new residues". An alternative wording to "fully" or clarification is requested..

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✓ In claim 2 (and any other the examiner might have missed) the relative term "almost" renders the claim indefinite. The term "almost" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Also repetitive uses of "subject to" in claim 2, and specification should be corrected as "subjected to".

✓ In claim 4 and 22 (and any other the examiner might have missed) the term "reacting tubes" renders the claims indefinite. The applicant might mean "reaction".

✓ In claim 2, line 5, the correct word "subjected" should be substituted for the incorrect word "subject". Also, in claim 2, other claims where recited and in the specification the incorrect term "hydrochloride" should be corrected as "hydrochloric acid" or at least hydrogen chloride. (less common).

✓ In claim 18, it is not understood what "few amount" refers to.

✓ Also, in claims 18, 24 (and any other the examiner might have missed) "led back" should be replaced with "returned" or "returned back". In claim 8 and others the incorrect term "few amount" should be replaced by a correct standard English substitute.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

The applicant is requested to review all claims carefully, to find and correct all similar errors. Any correction made in the claims should be compared with the specification so that conforming corrections can be made there as well.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xing (USP 6,133,491) alone or in view of the admitted prior art, commonly invented Jiang (WO 00/64997).

Xing teaches a process for producing hydrocarbons from waste materials, including plastics, comprising the steps of, preparing the feed in a feed preparation section which has the same features as the first pyrolytic cracking section which can have temperatures slightly less than the first pyrolytic section, passing the liquid and solid products from the pretreatment section to a pyrolytic cracking section which

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optionally contains a an acid catalyst bed, and wherein the liquid hydrocarbons from the pretreatment section is pyrolytically cracked . The residues from the pyrolysis section is passed to a spiral stirred reactor, which may also be a thermal cracking reactor or a catalytic cracking reactor or both. When it contains both the thermal cracking and catalytic cracking sections, the gases produced by thermal cracking is passed to catalytic bed (26) comprising an acid catalyst namesd SR-1. The gaseous hydrocarbons from cracking is passed to condensers where they are cooled and condensed at desired temperatures. (col. 2, lines 15-52, col. 2, line 66, col. 3, line 50, col. 4, lines 38 – col. 5, line 18, col. 6, lines 33-65, col. 7, lines 3-25, 43-62).

While it is acknowledged that the claimed subject matter differs from the Xing teachings, in that Xing calls for a feed preparation or pretreatment step and that Xing does not disclose a second thermal cracking reactor per se. However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because: The instant claim wording of "comprising" does not preclude initial feed preparation step, and such step in one embodiment can function as the first thermal cracking reactor in the instant claims. Further, the second reactor (spirally stirred) of Xing, has a pyrolysis and catalytic cracking section, in another embodiment, that pyrolysis section corresponds to instant "continous thermal cracking" section and the catalytic cracking section functions as the catalytic cracking section of the instant claims, rendering the difference as mere selection of correct embodiment from several, offered by Xing.

In the alternative, it would have been obvious for one having ordinary skill in the art to modify the Xing system by adjusting the conditions in the spiral reactor to function like the "subsidiary reactor" (60) of Jiang "so as to ensure the waste plastics fully gasified" (instant specification, 1<sup>st</sup> page, line 30+).

7. Claims 2-12, 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xing (USP 6,133,491) in view of Zhou et al. (USP 5,744,668) (1) or over Xing (USP 6,133,491) in view of the admitted prior art, commonly invented Jiang (WO 00/64997) and further in view of Zhou et al. (USP 5,744,668).

Xing and Jiang have been relied upon as set forth above.

It is acknowledged that Xing fails to teach a separate section for the removal of chlorine or other harmful substances. It would have been obvious to one having ordinary skill in the art at the time the invention was made because Zhou et al. teaches that when the feeds are those that contain harmful compounds, e.g. PVC, an alkali bed can be employed between thermal and catalytic cracking sections (figure, col. 3, lines 20-50).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

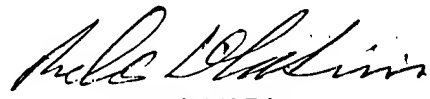
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bekir L. YILDIRIM whose telephone number is (703)

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308-3586. The examiner can normally be reached on 10:30-8:00 (alternating Mondays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 872-9467 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0611.

  
Brett L. Yicklin  
Primary Examiner

BLY  
February 9, 2003